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The Journal of Occupational Medicine will publish, in the May 1991 issue, a paper entitled "Mortality Among Workers Exposed to External Ionizing Radiation at a Nuclear Facility in Ohio." The study was carried out by Dr. Laurie Wiggs and colleagues at the Los Alamos National Laboratory under contract to the Department of Energy (DOE).

Using personnel records, the investigators identified 4,182 white male workers employed between 1947 and 1979 at the Mound Facility, located near Dayton, Ohio. The study focused on white men because the numbers of women and non-whites were small, and the total career radiation doses among the women were lower than those among the men.

Occupational external radiation exposure information was available for 3,229 of the Mound workers. In general, the median total career external radiation dose received by the workers was quite low, about the amount an average person would receive from natural sources over a period of 10 years. Eighty-two percent (82%) of the men had a recorded total external radiation dose of less than 50 millisieverts (mSv, 10 mSv = 1 rem), the current annual dose limit. These monitored workers were divided into two categories, those who had a total dose of less than 10 mSv, and those whose total external dose was higher than 10 mSv. No differences in death rates were found between the two groups.

The researchers also compared death rates among the 3,229 monitored white male Mound workers with those for white men in the United States general population who were of similar age. The Mound workers had a lower mortality rate from all causes combined than did white men in the United States general population (304 deaths were observed among white male Mound workers and 387 were expected). Sixty-six deaths from all types of cancer combined were observed and 75 would have been expected based on rates for United States white men of the same age.

A more detailed analysis was done to determine if the risk of death increased with increasing external radiation exposure. No relationship with dose was seen for all causes of death combined, all cancers combined, digestive cancers, or lung cancer. There was an increase in the risk of leukemia in workers in the "high" radiation exposure category compared with those in the lowest exposure category, but this finding was based on only two deaths from leukemia in the "high" exposure category. One of these deaths was due to chronic lymphatic leukemia, which is not generally considered to be caused by exposure to ionizing radiation.

In general, the Mound workers had lower mortality rates than United States men, a finding supported by data from other studies of DOE workers. Recently, an excess of leukemia mortality

was reported among white male DOE workers at the Oak Ridge facility, but this was not associated with recorded level of occupational radiation exposure. Additional followup of this and other DOE worker cohorts are necessary before any conclusions can be drawn regarding the relationship between leukemia and occupational exposure to radiation or other materials in DOE facilities.

NOTE: Another analysis of mortality rates among Mound Facility workers by date of hire and duration of employment is available in Los Alamos Report #LA-11997-MS.

- Additional Mound Analyses -

The July 1991 issue of Health Physics will publish a separate paper entitled "Mortality Among a Cohort of Workers Monitored for ^{210}Po Exposure: 1944-1972," which presents an analysis of mortality among 4,402 white men who worked at the Mound facility between 1944 and 1972. This was the period during which Polonium-210 was used, and monitoring was conducted for internal radiation dose. (Note: There was considerable overlap between this study group and the previous one. The study periods were slightly different, because of the availability of recorded exposure estimates; and this group was followed for mortality through the end of 1983). Among 2,181 Mound workers monitored for Polonium-210 exposure, mortality from all causes of death combined was lower than expected compared with the United States general population. The numbers of deaths from specific types of cancer and other causes were within the expected ranges. When mortality was examined by recorded internal dose of Polonium-210, no relationships with exposure level were noted for all causes combined, all cancers combined, or any specific type of cancer.

This Health Bulletin is one in a series of routine publications issued by the Office of Health to share data from health studies throughout the DOE complex. For more information contact:

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